Peaceful Nuclear Cooperation

U.S. Support for NPT Article IV

UNITED STATES & JAMAICA

Through the IAEA, the United States contributes to the work of many countries using nuclear materials and technology for peaceful purposes. In recent years, U.S. support has focused on achieving tangible and lasting benefits in fields that are vital to human development, including agriculture, human health, water resource management, and human resource development. Since 2000, the IAEA has approved and funded $3,192,998, including $105,183 in 2013, under its Technical Cooperation (TC) program for projects in Jamaica.

In addition to the United States' longstanding support for the IAEA's activities to promote peaceful nuclear applications, at the 2010 NPT Review Conference, the United States announced a $100 million USD effort to expand this support over the next five years. The United States has pledged $50 million towards the IAEA's Peaceful Uses Initiative (PUI), focusing on human health, food security, water resource management, and nuclear power infrastructure development.

The United States views its support for peaceful uses of nuclear energy, to which all NPT Parties are entitled, as a critical part of its broader effort to strengthen the IAEA and the global nuclear nonproliferation regime. The U.S. has already designated over $22 million for IAEA projects benefitting over 120 countries, including Jamaica, for which funding was previously unavailable. The United States is working with partners to reach the $100 million goal, and welcomes Japan, the Republic of Korea, New Zealand, the Czech Republic, Hungary, Sweden, Australia, France, Indonesia, Brazil, Italy, the UK and Kazakhstan who have announced their own commitments to the PUI of over $12 million.

NUCLEAR ENERGY

For various reasons, many of the IAEA's Member States have expressed an interest in nuclear power to meet their energy needs. Jamaica is therefore participating in a regional TC project supported by the United States to strengthen national and regional infrastructures for the planning and development of nuclear power programs. The project will help ensure that participating Member States have a complete understanding of the range of issues and activities that must be addressed before implementing a nuclear power program, and also ensure that there is a mechanism by which joint studies and issues can be addressed efficiently.

NUCLEAR FUEL

Recently, several countries, including Jamaica, participated in U.S.-supported regional TC projects to convert research reactor cores from highly enriched uranium (HEU) to low enriched uranium (LEU) and facilitate the return of highly enriched and low-enriched uranium to the country of origin. The projects assisted participating countries with research reactors to repatriate, manage, or dispose of their fresh or irradiated fuel, and supported the Russian Research Reactor Fuel Return program and the Global Threat Reduction Initiative.

NUCLEAR SAFETY

Jamaica is currently participating in two regional TC projects supported by the United States to improve the operational national regulatory infrastructure for safety and control of radiation sources to ensure the protection of people and the environment against the adverse effects of ionizing radiation. The projects will harmonize and streamline participating countries' national capabilities for regulatory control in compliance with international requirements and establish or develop a comprehensive national system for preparedness and response to radiological emergencies.

Human resource development is critical for Member States to be able to implement and sustain nuclear security,

1. *Power plant under construction. Credit: Kansai Electric Power Co.*
2. *Verifying a load of highly enriched uranium fuel before it is brought back to Russia. Credit: Dean Calma/IAEA*
3. *Nuclear analytical techniques can evaluate how well food, fortified with essential nutrients and minerals, sustains the body's health and growth. Credit: IAEA*

so Jamaica is also participating in a regional TC project supported by the United States to implement the component of the IAEA Nuclear Security Plan 2010-2013 which focuses on institutional capacity building, human resource development and educational programs. Strengthening nuclear security human resource development will contribute to sustained effective nuclear security worldwide.

HUMAN HEALTH

Early and accurate diagnosis is vital for effective treatment of both heart disease and cancer. The diagnostic and therapeutic applications of nuclear medicine techniques play a pivotal role in the management of these patients, improving the quality of life by means of an early diagnosis allowing opportune and proper therapy.

With cardiovascular disease as the leading cause of death in most Latin American countries and almost 800,000 new cases of cancer in the region each year, Jamaica is currently working through a regional TC project supported by the United States to improve the management of cardiac diseases and cancer patients by strengthening nuclear medicine techniques in Latin America and the Caribbean region.

Latin America also faces a double burden today: on the one hand, under-nutrition, and on the other hand, obesity. Jamaica is therefore participating in a regional TC project supported by the United States to improve the capacity of key institutions to use nuclear techniques to address each extreme of malnutrition. Isotopic techniques that will be used in the project include isotopic dilution with deuterium to assess body composition, as well as carbon-13 to measure fat and glucose oxidation. The project will improve the quality of programs in the region; contribute tools for the diagnosis and evaluation of micronutrient deficiencies, obesity and obesity-related chronic diseases; as well as allow the establishment of data for those programs, which will help in the identification of vulnerable groups, planning, and the prioritization of actions to be applied.

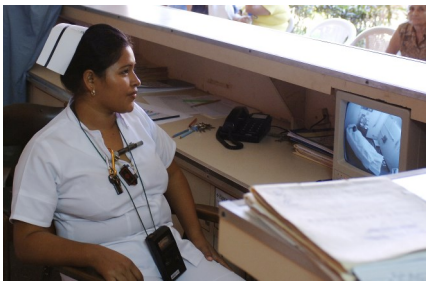
HUMAN RESOURCES

The prevalence of chronic diseases, malnutrition, food insecurity and energy production are major problems in Jamaica, all of which nuclear technology could help address. However, Jamaica has no university capacity for nuclear science and technology training, and graduate scientists are often not qualified for advanced international training programs. Jamaica is therefore working through a national TC project supported by the United States to strengthen its nuclear science and the knowledge necessary for sustainable applications of nuclear techniques by expanding the national capacity to utilize advanced X-ray fluorescence and gamma spectrometry laboratories.

To contribute to Member States' manpower development, the IAEA also awards individual fellowships and organizes group training courses. Every year, numerous fellows and training course participants travel to the United States for training in various peaceful uses of nuclear technology and return to their home country to apply the lessons learned.

Since 2000, the United States has hosted training courses that included Jamaican participants in the fields of nuclear safety and security. Training was also provided through the IAEA Fellowship Program to six Jamaicans, one of which was supported by the United States, in fields including plant breeding and genetics, assessment of micronutrients in nutrition, and nuclear knowledge management.

Additionally, since 2000, 23 U.S. experts have traveled to Jamaica to collaborate through various IAEA Technical Cooperation projects. Examples of some topics include mutant populations, nutrition-stunting, training, and further sampling.



1. *Metal seals show evidence of any unauthorized attempts to access secure material. Credit: Dean Calma/IAEA*
2. *Radiotherapy center. Credit: Rodolfo Quevenco/IAEA*
3. *2008 IAEA-Argonne seminar on nuclear security. Credit: Argonne National Laboratory*
4. *IAEA fellows receive training in plant breeding. Credit: Dean Calma/IAEA*